

**REMARKS**

Applicant respectfully requests reconsideration of the instant application in view of the foregoing amendments and the following remarks. Claims 1-17 were previously pending in the application. Claims 1-2, 9-10 and 17 are independent claims and have been amended. Claims 18-22 have been added by way of this Amendment. Applicant submits that no new matter has been added in this Amendment.

Applicant thanks the Examiner for indicating that claims 6 and 14 contain allowable subject matter.

**Objections to the Drawings/Specification**

The drawings and the specification have been objected to due to informalities identified on pages 2-3 of the Office Action. Applicant requests deletion of original figures 1-7, in accordance with the Examiner's suggestion. Accordingly, Applicant has amended original figures 8-11C to recite "replacement sheet" and renamed the figures, "Figs. 1A-4C" (a copy of the amended figures is attached herewith).

Further, Applicant also attached both a marked-up substitute specification and a clean copy of the substitute specification. The substitute specification reflects the deletion of figures 1-7, the renumbering of originally filed Figs. 8-11C, as replacement sheets 1A-4C, and the correction of informalities identified by the Examiner in the Office Action (See, Office Action, page 3). Applicant submits that no new matter has been introduced in the attached substitute specifications.

**Claim Objections**

Claims 1, 11 and 12 have been objected to due to informalities in the claim language. Applicant submits that claim 1 has been amended to further clarify the claim language. Further, Applicant submits that the number "1" after claim 12 in the originally filed claim listing was an informality that has been remedied in the attached amended claim listing. Accordingly, Applicant submits that the foregoing amendments overcome the claim objections.

**Rejections under 35 USC § 102/103**

Claims 1, 2, 4, 5, 9, 10, 12, 13 and 17 have been rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Lay (US Patent No. 5,735,779) ("Lay"). Claims 1-4, 7-12 and 15-17 have been rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Wood (US Patent No. 1,917,566) ("Wood"), in view of Takahashi (JP 05137815) ("Takahashi"). Applicant respectfully submits that the amended claims, as well as the claims dependent therefrom, are patentably distinct from the cited references, taken alone or in combination.

Claim 1 recites, *inter alia*, "An adjustable kettlebell comprising...one or more attachment members, wherein the one or more attachment members are configured deformable between a first position and a second position with a resilient mechanical compliance ...." Applicant submits that the weight devices disclosed in Lay, Wood or Takahashi do not teach, disclose or suggest an attachment member that is configured deformable between first and second positions with an resilient mechanical compliance.

In direct contrast to the invention recited in independent claim 1, Lay discloses a rotary exerciser configured with a fixed frame. More specifically, as illustrated in Lay's Fig. 5, the exercise device may be arranged in two configurations. However, in order to achieve the different configurations "fastening screws 54 are untightened and the M-shaped members 5 are shifted

outward...." (See, Lay, Col. 2, lines 41-49). As such, Lay does not anticipate at least a resilient mechanical compliance. In Lay, the M-shaped members 5 are free to move into either position. For at least this reason, Applicant submits that Lay's disclosure does not anticipate the claimed invention.

Similarly, neither Wood, nor Takahashi, taken alone or in combination teach, disclose or suggest the claimed invention. Instead of teaching an attachment member with an resilient mechanical compliance, Wood simply discloses "a wire bail 9a about the bight portion of which is disposed [near] a wooden handle or hand grip." (See, Wood, Col. 3, lines 14-16). Further, Takahashi simply discloses, "a band 5 fitted to both ends of the grip part 3 of the iron dumbbell...made of cloth like canvas...." (See, Takahashi, English-Abstract, Constitution Section). Applicant submits that neither Wood's wire bail 9, nor Takahashi's cloth, taken alone or in combination teach, disclose or suggest the claimed invention. Similarly, claims 9 and 17, as amended recite an element configured with resilient mechanical compliance and therefore are also patentably distinct from the cited references for at least the foregoing reasons.

### **CONCLUSION**

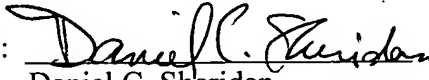
As such, Applicant submits the claimed invention recited in amended independent claims 1, 9 and 17 are patentably distinct from the cited references for at least these reasons. Further, Applicant submits that claims 2-8, 10-16 and new claims 18-20, which are directly or indirectly dependent on independent claims 1 or 9 respectively, are also patentably distinct from the cited references for at least similar reasons. Accordingly, Applicant requests withdrawal of these grounds of rejections.

**AUTHORIZATION**

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 03-1240, Order No. 16128-002. In the event that an additional extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 03-1240, Order No. 16128-002.

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## **ADJUSTABLE EXERCISE BELL**

Marked-Up Substitute Specification



Attorney Docket No.: 16128.002

## FIELD OF THE INVENTION

5           The present invention relates to exercise equipment. More particularly, this invention pertains to an adjustable kettlebell of an improved, compact design that can employ standard barbell plates.

## BACKGROUND OF THE INVENTION

10           In the specification ~~sequel~~, “dumbbell” defines an exercise device with two weight sections, connected by a handle section, while “kettlebell” defines a single mass section (often spheroidal) attached to single looped handle section. ~~A typical kettlebell design is shown in Figure 3.~~ While many exercises can be performed with both kettlebells and dumbbells, some motions are more comfortably performed with a kettlebell or provide a unique benefit that is distinct from the nearest dumbbell

15           equivalent. However, several kettlebell exercises such as the one arm clean (OAC) and the one arm snatch (OAS) require a degree of technique to avoid ~~result in~~ the kettlebell bashing against the user’s forearm. The impact force is confined to a relatively small contact area, and bruising and discomfort can often result.

### Limitations of Existing Adjustable Kettlebell Designs

20           In both the OAS and OAC exercise motions, a solid kettlebell provides a rounded surface that distributes both the impact and resting load of the kettlebell's mass. The primary disadvantage of a solid kettlebell design is that several kettlebells of varying

weights are required to accommodate a range of exercises and strength levels. Previous adjustable kettlebell designs have had deficiencies in that they employ nonstandard weights and/or fail to provide adequate roundedness and comfort in the final configuration. ~~The following review of the deficiencies in the prior art will outline the need for improvements/benefits provided by the present invention.~~

[[The]] A first adjustable kettlebell design[[,]] was created by CALVERT (described in U.S. Patent No. 1,316,683[[,]] issued to Milo Barbell Company), ~~is shown in Figure 1.~~ It comprises a handle attached to an outer shell surrounding a set of ~~specialize~~ specialized weights. The following features and deficiencies of the design used in CALVERT are addressed by the improvements of the present invention. In CALVERT, (1) non-standard weight plates are required; and (2) the handle clearance, the distance between the handle and the point of contact between the forearm and the mass section, is fixed. ~~To highlight the commercial disadvantage of requiring specialized weight plates, it should be noted that this design was manufactured and marketed by the Milo Barbell Company, which eventually went bankrupt and was resurrected by Bob Hoffman as the York Barbell Company in 1935.~~

Another adjustable type of kettlebell design is WOOD (described in U.S. Patent No. 1,917,566 issued to Robert Alfred Wood), ~~several variations of which are shown in Figure 2 in this application.~~ WOOD describes four major configurations of prior art designs. ~~In Figures 1 and 2 (of U.S. Patent No. 1,917,566),~~ WOOD describe a design with an accommodation for standard barbell plates inside of an outer shell. ~~In~~

Figure 3, it shows Wood discloses the two cups of the outer shell with the edges presented outwards. In, Figure 4 WOOD [[shows]] also discloses a continuous stack of plates secured by collars to a bar, all within the confines of the attachment member.

5 Figure 5 of In another configuration, WOOD [[shows]] discloses a modified form of the handle, assembled with several of the discs at each end of the bell configuration, the cup members being omitted.

WOOD does not reveal or describe several important features, namely, (1)

10 a configuration that approximates the smooth surfaces found in the solid forged kettlebell without requiring a separate outer shell member; (2) a configuration where plates of the weight stack straddle the attachment members; (3) a configuration free of stop collars which avoids wide, awkward protrusions; and (4) a “solid” configuration that prevents sway of the main weight section ~~w.r.t.~~ with regard to the handle, along with an

15 attachment mechanism that provides for an adjustable handle clearance. While WOOD contemplates a configuration with a solid handle (a wire bail), it does not describe a means to combine the solid handle with an adjustable handle clearance. Furthermore, adding additional chain links to the configurations described by WOOD will only increases the relative sway.

20 Another design for an adjustable kettlebell~~[[,]]~~ was implemented by GRACE (Gracefitness), ~~reference to which was found at~~ www.gracefitness.com/blackironkettlebell.htm, is shown in Figure 6. It [[shows]]



involves a gnurled handle, a set of specialized bevel discs, and a set of twisted steel bars functioning as a means of attachment between the weight discs and the gnurled handle.

- 5 The following features and deficiencies of the GRACE design are addressed by the improvements of the present invention. ~~As shown in Figure 6,~~ GRACE requires (1) specialized beveled plates are required to form the rounded surface near the line of contact; (2) that the handle clearance is a fixed distance from the contact point; and (3) the plate axis is perpendicular the handle's axis, hence adjusting the number of weights  
10 changes the point of contact.

Two more adjustable designs that use standard barbell plates, ~~shown in Figures 4 and 5,~~ are manufactured by Piedmont Design Associates (PDA), ~~references to which were found at~~

~~www.fractionalplates.com/cgi-bin/ledat/PDAstore.cgi?useraction=detail&catalogno=10~~

- 15 ~~5.~~ The deficiencies of the PDA designs are as follows: (1) the use of retaining collars results in significant gaps in the spacing of the weight plates that straddle the attachment member; (2) the use of retaining collars results in significant protrusions on the outside of the bell configuration; (3) the handle clearance between the handle and the bar is fixed.

Another kettlebell design has been designed by IRONMIND (Ironmind),  
20 ~~reference to which was~~ found at

~~www6.mailordercentral.com/ironmind/prodinfo.asp?number=1275&variation=&aitem4  
&mitem=5,~~ is shown in Figure 7. It ~~[[shows]]~~ implements the plate axis to be

perpendicular to the handle axis, but requires careful consideration of the weight stack configuration to avoid having the weight plate edges come to rest with the forearm during  
5 some exercises. This design and instructions from manufacturers indicate their awareness of the shortcomings of this arrangement and discourage all exercise motions that involve the weight resting on the forearms.

### SUMMARY AND OBJECT OF THE INVENTION

In light of the deficiencies, shortcomings and drawbacks of the known  
10 kettlebell designs, it is therefore an object to provide an improved kettlebell weightlifting device which includes an adjustable configuration that provides for a plurality of standard weight discs forming a weight stack with a central plate axis.

It is further object of the current invention to provide a supporting bar aligned along the plate axis, this axis being nominally parallel to the axis of the grip  
15 section of the handle.

It is another object of the current invention to provide a rounded grip section that affords comforting grip to the user.

It is also an object of the current invention to provide [[an]] attachment members that afford significantly reduced gaps between weight discs that straddle said  
20 attachment sections.

It is further desirable that these attachment members are structured as to provide an adjustable distance between the grip section and the plate axis.

These and other objectives, characteristics and advantages of the present invention will be disclosed in more detail with reference to the attached drawings.

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## BRIEF DESCRIPTION OF THE DRAWINGS

~~Figure 1 illustrates a prior adjustable kettlebell design described in the U.S. Patent No. 1,316,683, issued to Milo Barbell Company, referred to as CALVERT herein.~~

10 ~~Figure 2 illustrates a prior adjustable kettlebell design described in the U.S. Patent No. 1,917,566 issued to Robert Alfred Wood, referred to as WOOD herein.~~

~~Figure 3 illustrates a prior basic kettlebell design.~~

~~Figures 4 and 5 illustrate two prior adjustable designs that are manufactured by Piedmont Design Associates, referred to as PDA herein.~~

15 ~~Figure 6 illustrates another prior design, referred to as GRACE (Gracefitness) herein.~~

~~Figure 7 illustrates another prior design, referred to as IRONMIND herein.~~

Figure ~~[[8]]~~ 1A is a partially exploded elevation view of one embodiment of the present invention.

20 Figure 1B is a side view of an implementation of an attachment member illustrated in Fig. 1A from the perspective of reference character AA.

Figure 1C is a side view of another implementation of an attachment member illustrated in Fig. 1A from the perspective of reference character AA.

Figure [[9]] 2 is an elevation view of the present invention highlighting the flexure of the attachment structure.

5                   Figure [[10]] 3 is a side view of one embodiment of the present invention, showing the rounded handle, weight discs, and the "forearm".

~~Figure 11 is~~ Figures 4A-4C are a schematic representation of the present invention, showing three additional configurations in accordance with the current invention, showing a narrow configuration with large plates and hemispherical end caps in Figure [[11a]] 4A, a narrow configuration with small plates and hemispherical end caps in Figure [[11b]] 4B, and a narrow configuration with small plates, hemispherical end caps and a protective band in Figure [[11c]] 4C.

## DETAILED DESCRIPTION OF THE INVENTION

15                   Figure [[8]] 1A shows an elevation view of one embodiment of the present invention in 5 partial disassembly. A curved and rounded handle assembly is comprised of a grip section 1 and ~~a then, at~~ an attachment member or "blade" 14. The "blade" 14 intersects the stack of disc weights 18 with a minimal gap 16 introduced between weight plates. The subassembly of the bolts 34, 35, washers 91 and the elongated nut 28  
20                   forming a support bar 70 for the weight stack.

                  In this particular embodiment, an elongated hexnut 28 with a captive washer 90 welded to one end, is passed through a central disc stack 96 from the left until

the captive washer 90 meets the outside face of the left blade, while the right bolt 35 is passed through an outside washer 91 and rightmost weight assembly 92 and threaded into the hexnut 28 from the right, and the left bolt 34 is passed through the leftmost weight assembly 94 and threaded into 28 from the left. As the bolts are tightened down, the gap 88 between the outside weight assemblies 94 and 92 and center weight stack 96 reduces to the thickness of the attachment members 14 - the final configuration forming a single, physically tight assembly. The subassembly of the bolts 34, 35 and the elongated hexnut 28 forming a support bar 70 assembly for the weight stack. Section AA #1 shows the cross section of the blades 14 with distinct holes 20 for different positions of the bar. Section AA #2 shows the cross section of the blades 14 with a scalloped hole pattern 22 that provide for a finer adjustment of support bar positions. The adjustable hand clearance 98 feature is demonstrated with the center line 24 aligned with holes AA #1 , and the center line 25 aligned with sections AA #2. Distinct holes 20, or small nibs 23 in the hole pattern 22 can provide a hard mechanical stop for the hexnut 28. Alternately, the design can rely solely on the friction of a tightened support bar to set and maintain a specific handle clearance 98.

[[I]] In Figure 8, the support bar 70 is comprised of the left bolt 34, elongated nut 28 with captive washer 90 and right bolt 35. With various combinations of outside bolts (34 and 35) and a 4" long hexnut 28, the length of the support bar can safely span a

range of 4" to 10". Other features of this invention may include the following additional elements:

- 5                   1) since the captive washer 90 provides access to the internal thread of the hexnut 28, the right weight assembly 92 can be modified without rearranging either the [[15]] core 96 or the left weight assembly 94;
- 2) additional combinations of inside and outside bolts can provide additional lengths, if necessary;
- 10               3) either or both outside weight assemblies may be omitted.

Alternately, the support bar can be configured as a variety of other mechanical arrangements that effectively result in a shaft of adjustable length. Moreover, a support bar can be comprised of a solid or hollow tube along with standard securing  
15 mechanisms, such as spring, spiral clamps or large pitch spiral threads, with the proviso that such configurations can introduce additional protrusions past the outside weight assemblies.

By defining an attachment member 10 with various hole configurations of 20 or 22 (see Figure [[8]] 1A-1C) the present invention allows for an adjustment of the  
20 distance between [[4]] support bar 70 axis 24 and the grip axis, and provides the key improvement that the user can adjust the optimum contact point 32 independently of the diameter of the weight plates that are used.

Figure [[9]] 2 illustrates another aspect of the present invention. The blade section 14 is part of a single piece of bent spring material 74 (preferably spring steel), that is embedded in a partially hollow grip-section 1 with outside profile 82. A bar 74 is bent to a profile that fits snugly against the internal webs 80 of an otherwise hollow grip section 1 which could be constructed by joining two halves of either stamped metal or molded material (for example, ABS plastic). The internal webs 80 function to secure [[art]] part of the bar member 74 between pivot points 76. Below the pivot points 76, there is an internal clearance 98 that allows the bar 74 to flex within the hollow grip-section 1.

As the bolt 35 is threaded against the elongated hexnut 28, the blades 14 flex into a new profile 78. Additionally, if the nominal hex pattern 22 is cut into the blade attachment members 14, then the hexnut 28 can be restrained from spinning even if the core weight stack 96 width is greater than the hexnut's length. This safety feature prevents the inadvertent loosening of one bolt while the user tightens the other bolt. Additionally, by setting the pivot point 76 far from the bottom of the grip-section 1, the present invention achieves greatly increased mechanical compliance of the blades 14, allowing the blades to clamp tightly against a central plate assembly 96 of vary width without excessive stress being placed on the blades or the grip-section 1.

Figure [[10]] 3 shows the side view of the kettlebell configuration, with a grip-section 1 leading into the attachment member blades 14 that intersperse the weight

stack. The inner stack of weights is comprised of larger weight discs 18 (e.g., 10 pounds), while the outer edges of the stack are comprised of smaller weight discs 17 (e.g., 5 pounds). The forearm 40 is shown in schematic representation along with the range of motion 30 of the forearm.

In this view, the contact point 32 between the forearm 40 and the weight stack shows the critical nature of the hand clearance (the distance between the support bar axis 24 and the grip axis). If this clearance is too small then the weight's leverage against the wrist can impose excessive pressure at the contact point. If this clearance is too large, then the flipping action (described in the OAS and OAC motions above) of the kettlebell allows for excessive acceleration of the weight stack prior to terminating at the contact point 32 .

~~Figure 11 shows~~ Figures 4A-4C show some additional configurations of the present invention. Configuration 64 in Figure ~~[[11a]]~~ 4A shows a weight stack comprised of four ten pound discs 18 along with hemispherical end caps 48 all aligned on centerline axis 44. The hemispherical end caps 48 would have a deep countersunk hole that would allow for bolt head and support bar (not shown in this drawing) to pass through the majority of the hemispherical end cap. The final configuration nearly approximates the hemispherical shape of the original solid kettlebell. The hemispherical end caps could be made of any material. A metal cap would provide additional weight, while caps ~~preferably~~ made of plastic, foam, wood or other ~~inexpensive~~ lightweight



material ~~afford~~ provide the desired shape without ~~[[the]]~~ significant additional weight or requirement for a specialized forging.

5 Configuration 66 in Figure ~~[[11b]]~~ 4B, shows a weight stack comprised of four 5 pound discs 17 along with smaller hemispherical end caps 49 all aligned on centerline axis 46. Substantially less weight is involved (20 vs 40 pounds), but the optimal contact point is preserved by ~~[[5]]~~ adjusting the centerline 46. The smaller hemispherical end caps 49 have all the characteristics of their larger counterparts 48 in  
10 configuration 64.

Configuration 68 in Figure ~~[[11c]]~~ 4C, shows a weight stack comprised of four 5 pound discs 17 along with the larger hemispherical end caps 48, and a protective band 50 around the weight stack, all aligned on centerline axis 44. The weight stack of 17, spherical end caps 48 and protective band 50 comprising an entirely spheroidal shape  
15 of relatively low weight and large size, are envisioned for the less aggressive user. The hemispherical caps and/or protective band can be manufactured out of a dense shock absorbing foam for additional comfort and protection.

While there have been shown and described, pointed fundamental novel features of the invention as applied to embodiments thereof, it will be understood that  
20 various omissions and substitutions and changes in the form and details of the invention, as herein disclosed, may be made by those skilled in the art without departing from the spirit of the invention. In particular all weights and dimensions introduced in the specification were presented for illustrative purposes, and variations in said weights and

dimensions are anticipated and will not affect the utility of the present invention. It is expressly intended that all combinations of those elements and/or method steps which

5 perform substantially the same function in substantially the same way to achieve the same results are within the scope of the invention. It is the intention, therefore to be limited only as indicated by the scope of the claims appended hereto.

## ABSTRACT

This invention pertains to an improved adjustable kettlebell that has a  
5 stack of standard weight plates, a rounded grip section, a support bar serving to hold the  
weight stack, and flexible attachment members with cutouts for the support bar. The  
flexible attachment members provide a mechanically compliant clamping arrangement to  
accommodate weight stack of varying widths, and the cutouts allowing adjustment to the  
relative distance between the grip axis and the support bar axis. The improved adjustable  
10 kettlebell of the current invention serves as a close physical approximation to a solid cast  
kettlebell with a wide combination of standard weight plates.